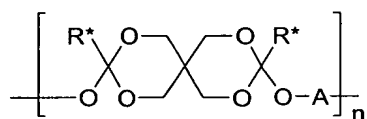
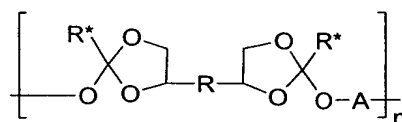


**WHAT IS CLAIMED IS:**

1. A pharmaceutical composition, comprising:  
an active agent selected from mepivacaine, bupivacaine, dibucaine, procaine, lidocaine, tetracaine, antibiotics, antivirals, fungicides, scabicides or pediculicides,
- 5 benzalkonium chloride, benzethonium chloride, chlorhexidine gluconate, mafenide acetate, methylbenzethonium chloride, nitrofurazone, nitromersol, estrogens, progestins, androgens, adrenocorticoids, insulin, erythropoietin, morphogenic proteins, bone morphogenic protein, aspirin, ibuprofen, naproxen, ketorolac, COX-1 inhibitors, COX-2 inhibitors, mechlorethamine, cyclophosphamide, fluorouracil, thioguanine, carmustine,
- 10 lomustine, melphalan, chlorambucil, streptozocin, methotrexate, vincristine, bleomycin, vinblastine, vindesine, dactinomycin, daunorubicin, doxorubicin, tamoxifen, morphine, meperidine, codeine, combrestatin, contortrostatin, anti-VEGF, astringents, antiperspirants, irritants, rubefacients, vesicants, sclerosing agents, caustics, escharotics, keratolytic agents, sunscreens, hypopigmenting and antipruritic agents, fungicides,
- 15 pesticides, herbicides, plant growth promoters or inhibitors, preservatives, disinfectants, air purifiers, nutrients, dexamethasone, cortisone, hydrocortisone, prednisone, prednisolone, beclomethasone, betamethasone, flunisolide, fluocinolone acetonide, fluocinonide, triamcinolone, flurogestone, medroxyprogesterone, norgestrel, norgestimate, norethindrone, fluorouracil and LHRH antagonists; and
- 20 a semi-solid delivery vehicle comprising:  
a polyorthoester of formula I or formula II



(I)



(II)

where:

R is a bond,  $-(\text{CH}_2)_a-$ , or  $-(\text{CH}_2)_b-\text{O}-(\text{CH}_2)_c-$ ; where a is an integer of 1 to 10, and

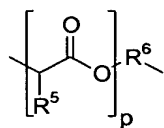
- 25 b and c are independently integers of 1 to 5;

R\* is a  $\text{C}_{1-4}$  alkyl;

n is an integer of at least 5; and

A is  $\text{R}^1$ ,  $\text{R}^2$ ,  $\text{R}^3$ , or  $\text{R}^4$ , where

$\text{R}^1$  is:



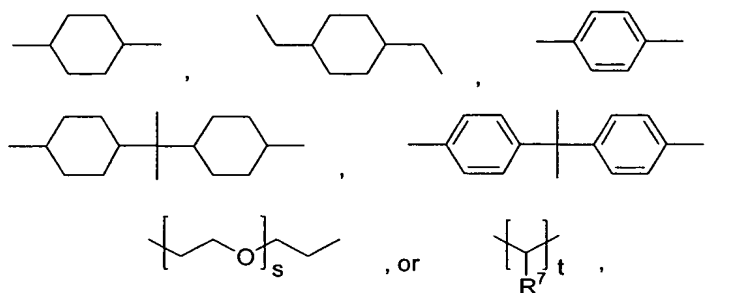
where:

p is an integer of 1 to 20;

R<sup>5</sup> is hydrogen or C<sub>1-4</sub> alkyl; and

5

R<sup>6</sup> is:



where:

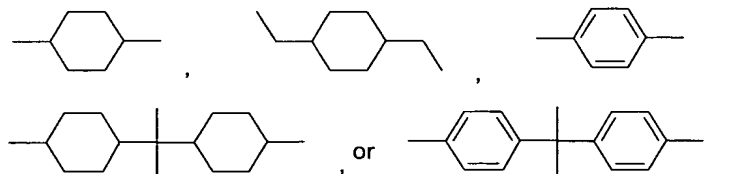
s is an integer of 0 to 30;

t is an integer of 2 to 200; and

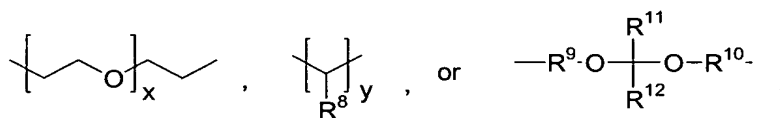
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R<sup>7</sup> is hydrogen or C<sub>1-4</sub> alkyl;

R<sup>2</sup> is:



R<sup>3</sup> is:



15

where:

x is an integer of 0 to 30;

y is an integer of 2 to 200;

R<sup>8</sup> is hydrogen or C<sub>1-4</sub> alkyl;

R<sup>9</sup> and R<sup>10</sup> are independently C<sub>1-12</sub> alkylene;

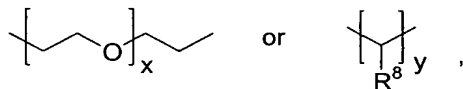
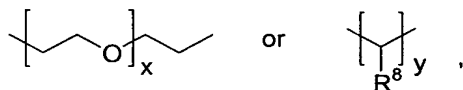
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R<sup>11</sup> is hydrogen or C<sub>1-6</sub> alkyl and R<sup>12</sup> is C<sub>1-6</sub> alkyl; or R<sup>11</sup> and R<sup>12</sup> together are C<sub>3-10</sub> alkylene; and

$R^4$  is a diol containing at least one functional group independently selected from amide, imide, urea, and urethane groups;

in which at least 0.1 mol percent of the A units are of the formula  $R^1$ , and

a pharmaceutically acceptable, polyorthoester-compatible liquid excipient selected

- 5 from polyethylene glycol ether derivatives having a molecular weight between 200 and 4000, polyethylene glycol copolymers having a molecular weight between 400 and 4000, mono-, di-, or tri-glycerides of a  $C_{2-19}$  aliphatic carboxylic acid or a mixture of such acids, alkoxyated tetrahydrofurfuryl alcohols and their  $C_{1-4}$  alkyl ethers and  $C_{2-19}$  aliphatic carboxylic acid esters, and biocompatible oils.
- 10 2. The composition of claim 1, wherein the active agent is mepivacaine.
3. The composition of Claim 2 where the concentration of the polyorthoester ranges from 1% to 99% by weight of the delivery vehicle.
4. The composition of Claim 2 where the polyorthoester has a molecular weight between 1000 and 20,000.
- 15 5. The composition of Claim 2 where the fraction of the A units that are of the formula  $R^1$  is between 1 and 90 mol percent.
6. The composition of Claim 2 where the polyorthoester is of formula I, where:
- none of the units have A equal to  $R^2$ ;
- 20  $R^3$  is:
- 
- where:
- x is an integer of 0 to 10;
- y is an integer of 2 to 30; and
- 25  $R^6$  is:
- 
- where:
- s is an integer of 0 to 10;
- t is an integer of 2 to 30; and
- 30  $R^5$ ,  $R^7$ , and  $R^8$  are independently hydrogen or methyl.
7. The composition of Claim 6 where:

R<sup>3</sup> and R<sup>6</sup> are both  $-(\text{CH}_2-\text{CH}_2-\text{O})_2-(\text{CH}_2-\text{CH}_2)-$ ;

R<sup>5</sup> is methyl; and

p is 1 or 2.

8. The composition of Claim 6 where:

5 R<sup>3</sup> and R<sup>6</sup> are both  $-(\text{CH}_2-\text{CH}_2-\text{O})_9-(\text{CH}_2-\text{CH}_2)-$ ;

R<sup>5</sup> is methyl; and

p is 1 or 2.

9. The composition of Claim 2 where the fraction of the active agent is from 1% to 60% by weight of the composition.

10 10. The composition of Claim 9 where the fraction of the active agent is from 5% to 30% by weight of the composition.

11. The composition of Claim 2 where the composition is in topical, syringable, or injectable form.

12. A method of treating a disease state treatable by controlled release local  
15 administration of an active agent, comprising locally administering a therapeutically effective amount of the active agent in the form of a pharmaceutical composition of Claim 1.

13. The method of Claim 12 where the active agent is mepivacaine.

14. A method of preventing or relieving local pain at a site in a mammal,  
20 comprising administering to the site a therapeutically effective amount of a local anesthetic in the form of a pharmaceutically acceptable composition of Claim 2.

15. A method of preventing or relieving local pain at a site in a mammal, comprising administering to the site a therapeutically effective amount of a local anesthetic in the form of a pharmaceutically acceptable composition of Claim 9.

25 16. A process for the preparation of the pharmaceutical composition of Claim 1 where the active agent is in solid form, comprising:

optionally milling the active agent to reduce the particle size of the active agent;

mixing the active agent and the delivery vehicle; and

optionally milling the composition to reduce the particle size of the active agent.

30 17. The composition of claim 2, wherein the excipient is poly(ethylene glycol)monomethyl ether 550.

18. The composition of claim 2, wherein the excipient is a polyethylene glycol ether derivative having a molecular weight between 200 and 4000.

19. A method of preventing or relieving local pain at a site in a mammal, comprising administering to the site a therapeutically effective amount of a local anesthetic in the form of a pharmaceutically acceptable composition of Claim 17.